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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,638	03/01/2004	James H. Werner	S-100,565	9767

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LOS ALAMOS NATIONAL SECURITY, LLC
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EXAMINER

GEISEL, KARA E

ART UNIT	PAPER NUMBER
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2877

MAIL DATE	DELIVERY MODE
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04/25/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/790,638

Applicant(s)

WERNER ET AL.

Examiner

KARA E. GEISEL

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments filed February 5th, 2008 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). However, it is noted that applicant focuses on the fact that Weiss provides no motivation to combine the apparatus with the claimed sample (see arguments page 5, lines 1-24), when it is clear from the previous Office Action (paper number 20071101) that the reason to combine came mainly from the Swanson reference (USPN 6,627,396 or 6,893,814).

As a first note, the apparatus, as claimed in the present application (see claim 1, lines 5-18), minus the sample itself, is merely a conventional inverted confocal microscope. It can be seen that this type of apparatus is conventional by looking at previously cited reference Weiss et al. (US Pubs 2002/0064789), and newly cited references Weiss et al (US Pubs 2007/0109536), and Woodbury et al. (US Pubs 2003/0148393) which all describe an apparatus comprising a transparent substrate for support of a sample under investigation, a light source for providing an excitation light beam to excite the sample, a first filter means for reflecting the excitation light beam from the light source to an objective and for filtering light received from the sample, an objective for collecting the reflected excitation beam from the first filter means and sending it through the transparent substrate to the sample, a support having a pinhole therethrough for directing light filtered by the first filter means to a second filter means, a second filter means for reflecting a portion of the light received from the pinhole to a first detector means, and for

filtering the remainder of the light received through the pinhole, a first detector means for detecting light reflected from the second filter means and a second detector means for detecting light filtered by the second filter means. These types of inverted microscopes with two detectors have the added advantage of being able to measure two distinct wavelengths simultaneously. Weiss was cited merely in order to show an example of this conventional type of microscope. These microscopes, and specifically Weiss et al., can be used to measure **any sample** desired by the user. Since these microscopes can measure **any sample** desired, the motivation to combine this conventional apparatus with a sample, would depend on the intended use of the device. Furthermore, just because Weiss teaches the specific samples of TFSs and NCs (see arguments, page 5, lines 9-17), this does not exclude this apparatus from being used with any other sample.

To answer applicant's question, "why would one of ordinary skill in the art specifically choose membrane vesicles that have a trifunctional linker molecule with a fluorophore?" the examiner has provided a copy of the motivation from the previous Office Action below:

"Swanson discloses a sample comprising membrane vesicles including a trifunctional linker molecule including a fluorophore (column 3, lines 15-25). The fluorophore attached **can fluoresce at two specific wavelengths**, depending on attachment of a virus, therefore leading **to an ultra-sensitive detection of the influenza virus** (column 7, lines 5-31)."

A person of ordinary skill in the art that would be interested in detection of the influenza virus, would look at all possible samples to determine the best possible sample to detect the virus. Since Swanson discloses an ultra-sensitive detection of the influenza virus (see for example column 4, lines 9-27 and column 7, lines 5-31), a person of ordinary skill in the art would be motivated to use this sample to detect the influenza virus. Since, in order to do this, the sample requires a detection apparatus that detects at two specific wavelengths (see column 7, lines 5-31), it would be obvious to use a conventional apparatus as the one described by Weiss in order to do this.

Therefore, the rejection has been maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiss et al. (US Pubs 2002/0064789), in view of Swanson et al. (USPN 6,627,396), **or** in view of Swanson et al. (USPN 6,893,814), all previously cited.

As a note: Swanson '814 is a divisional of Swanson '396, and therefore, an identical rejection can be, and is being made for both patents.

In regards to claim 1, Weiss discloses an apparatus (fig. 1) comprising a transparent substrate (below S) for support of a sample under investigation (S), a light source for providing an excitation light beam to excite the sample (laser), a first filter means for reflecting the excitation light beam from the light source to an objective and for filtering light received from the sample (DC1), an objective for collecting the reflected excitation beam from the first filter means and sending it through the transparent substrate to

the sample (OL), a support having a pinhole therethrough for directing light filtered by the first filter means to a second filter means (PH), a second filter means for reflecting a portion of the light received from the pinhole to a first detector means, and for filtering the remainder of the light received through the pinhole (DC2), a first detector means for detecting light reflected from the second filter means (APD2) and a second detector means for detecting light filtered by the second filter means (APD1). Weiss is silent to the sample comprising membrane vesicles including a trifunctional linker molecule including a fluorophore. However, the invention is directed to a confocal microscope which would be suitable for detecting a sample with a fluorophore that can fluoresce in two specific wavelengths (§ 98).

Swanson discloses sample comprising membrane vesicles including a trifunctional linker molecule including a fluorophore (column 3, lines 15-25). The fluorophore attached can fluoresce at two specific wavelengths, depending on attachment of a virus, therefore leading to an ultra-sensitive detection of the influenza virus (column 7, lines 5-31). Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to use the apparatus of Weiss for detecting a sample with a fluorophore that can fluoresce in two specific wavelengths to measure the sample of Swanson comprising membrane vesicles including trifunctional linker molecule including a fluorophore in order to detect the two wavelengths of the fluorophores in order to have an ultra-sensitive detection of the influenza virus.

In regards to claim 2, the objective is a converging lens (OL and § 102).

In regards to claim 3, the first and second filter means are dichroic mirrors (DC1 and DC2 and § 102).

In regards to claim 4, said first filter means is a longpass optical filter reflecting excitation wavelengths and passing fluorescence emission wavelengths (DC1) and said second filter means spectrally resolves said fluorescence emission wavelengths (DC2 and § 102).

In regards to claim 5, the first dichroic mirror would be selected to reflect the wavelength at which the sample could be excited, and transmit the emission wavelengths from the sample, and the

second dichroic mirror would be selected to reflect one set of emission wavelengths and pass another set of emission wavelengths from the sample. Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have first dichroic mirror reflects wavelengths below 500 nm and passes wavelengths above 500 nm and said second dichroic mirror reflects wavelengths below 550 nm and passes wavelengths above 550 nm if these were the parameters of the excitation and emission wavelengths of the sample.

In regards to claim 6, the transparent substrate can be made of glass (microscope slides are traditionally made from glass).

In regards to claim 7, the apparatus is characterized as having a single detection channel (the channel being from the sample, S, to the detectors, APD1-2).

Additional Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record is Weiss et al (US Pubs 2007/0109536), and Woodbury et al. (US Pubs 2003/0148393).

Weiss and Woodbury both disclose an apparatus comprising a transparent substrate for support of a sample under investigation, a light source for providing an excitation light beam to excite the sample, a first filter means for reflecting the excitation light beam from the light source to an objective and for filtering light received from the sample, an objective for collecting the reflected excitation beam from the first filter means and sending it through the transparent substrate to the sample, a support having a pinhole therethrough for directing light filtered by the first filter means to a second filter means, a second filter means for reflecting a portion of the light received from the pinhole to a first detector means, and for filtering the remainder of the light received through the pinhole, a first detector means for detecting light reflected from the second filter means and a second detector means for detecting light filtered by the second filter means.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARA E. GEISEL whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 10am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax phone number for the organization where this application or proceeding is assigned is **571 273 8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Kara E Giesel/
Patent Examiner,
Art Unit 2877**

April 24, 2008